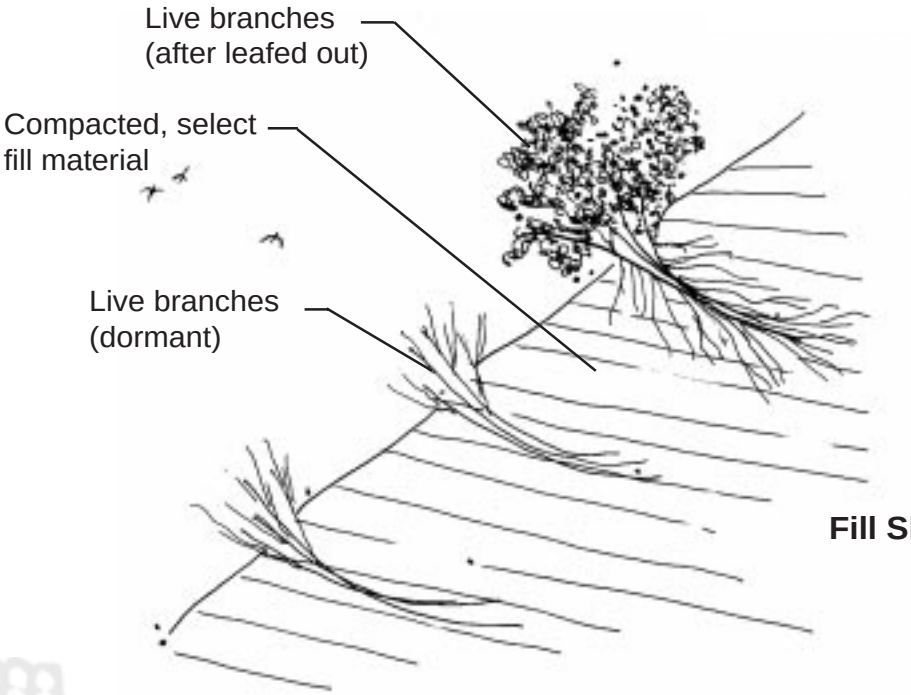
PRIMARY USE: Minimize bank erosion.
ADDITIONAL USES: Enhance aesthetics through the establishment of vegetation.

BRUSH LAYERING

What is it? In this technique live, cut branches are interspersed between layers of soil on either cut slopes or fill slopes.

Purpose

Brush layering can be used to stabilize a slope against shallow sliding or mass wasting in addition to providing erosion protection. It is more effective than live fascines in terms of earth reinforcement and mass stability. Brush layers can be used to stabilize and reinforce the outside edge or face of drained earthen buttresses that are placed against cut slopes or embankment fills.



Fill Slope Brush Layering Installation Section View

Limitations

Brush layering works better on fill than cut slopes because much longer stems can be used in fill.

Materials

Dormant live branches or brush. Long pieces are cut from willow, alder, or dogwood. The length of the branches will vary with the type of brush layer (cut or fill slope) and the desired depth of reinforcement. Branches up to 12 ft (3.7 m) in length can be used on fill slope brush layer installations.

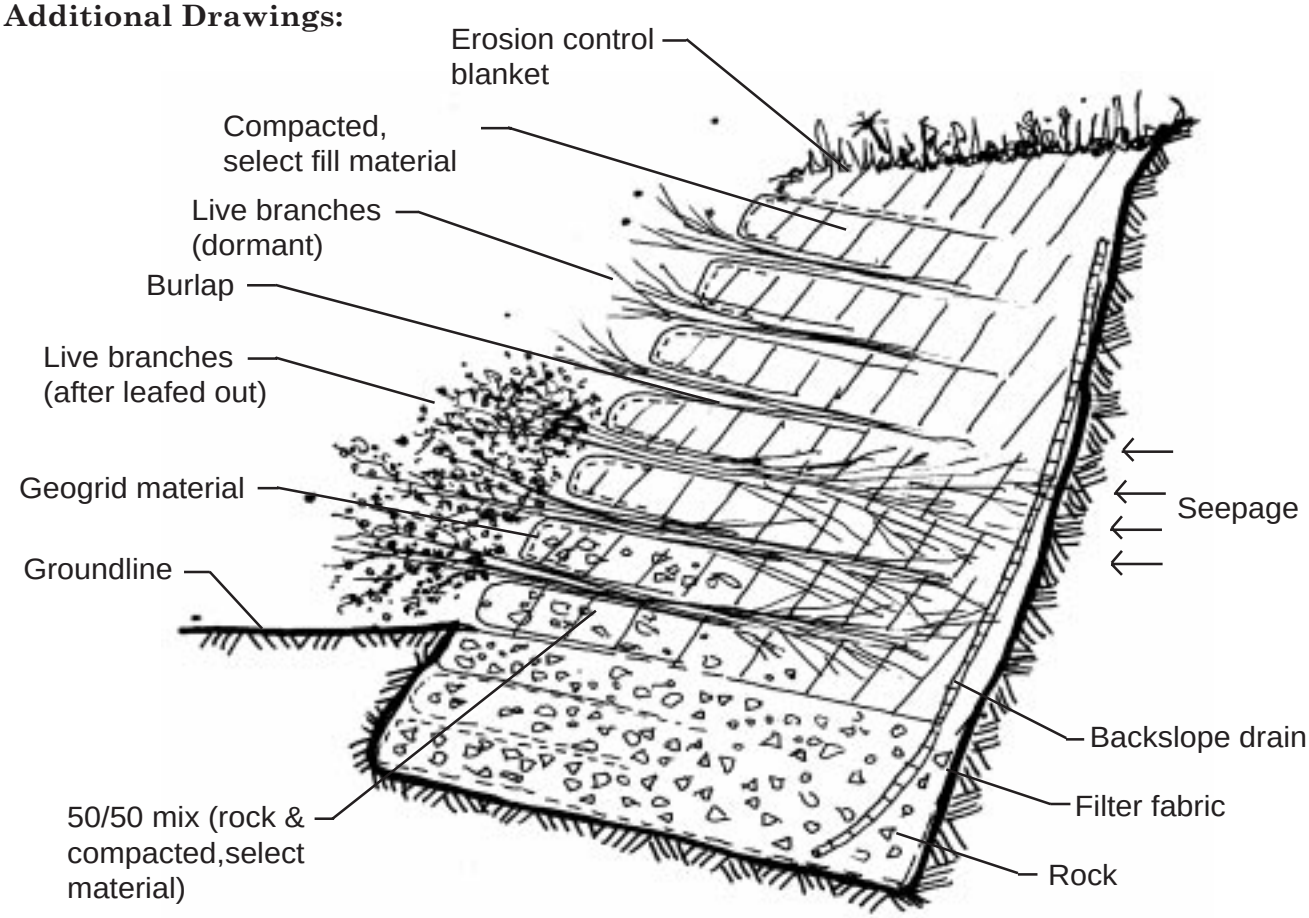
Installation

Brush layer installations begin at the base of the slope and proceed upward. Although the installation procedure differs for fill slopes and cut slopes (see diagrams), the following guidelines apply in both situations. The surface on which the brushlayers are placed should slope back into the slope slightly (approximately 10 to 20 degrees off horizontal). Live branches are placed in a crisscross or overlapping pattern with growing tips facing the outside face of the slope. Backfill is placed on top of the branches and compacted. Brush layer rows should vary from 3 to 10 ft (0.9 to 3 m) apart along the slope depending on the slope angle, site and soil conditions, and position on the slope. Long straw or similar mulching material should be placed between rows on 3:1 or flatter slopes. Jute fabric or hold-down netting should be used on steeper slopes.

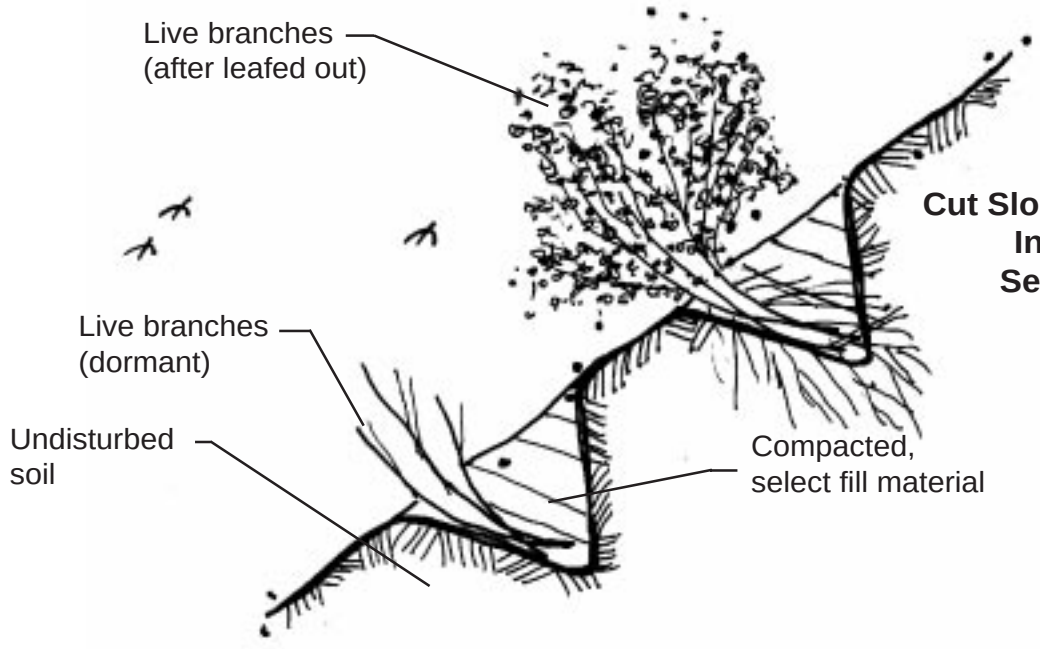
Source: Soil Bioengineering Stabilization: Techniques and Methods, Gray, D.H. and Sotir, R.B.

BRUSH LAYERING

Additional Drawings:



Layers of Live Brush between Lifts of Topsoil
Section View



Cut Slope Brush Layer Installation
Section View

Source: Soil Bioengineering Stabilization: Techniques and Methods, Gray, D.H. and Sotir, R.B.